



system correctly each time, thus avoiding the tedious task of manually dialing the requisite code. One embodiment of the invention will not require any user programming. The user can receive his/her card completely pre-programmed.

Certain advantages of the invention include ease of dialing a telephone number using a charge card to input the number through the receiver of the telephone or through insertion into the charge card slot provided on certain telephones. The card has the ability to store a large number of numbers which can be retrieved as desired or dialed in sequence. This permits the user to recall numbers that he otherwise would not use because of the inability to locate the number. Where a sequence of numbers is to be dialed, the invention provides this feature as well.

Another advantage of the invention is the elimination of concurrent unauthorized use since the card can be designed without a visible number that can be readily copied. In this way the user can be ensured that while using the card no other third party can have access to his charge number. Because the number is not written elsewhere, there is no fear of losing the number so that it falls into the wrong hands and is used without permission. Should the "Universal Credit Card" be lost or stolen, the owner simply reports such and the access number would be made inactive by the appropriate company, or in the case that the user is using a PIN number, the card is inoperative. Essentially the card could be lost or stolen without the fear of fraudulent use. Industry-wide use would all but eliminate credit card fraud, currently in excess of 1.4 billion dollars.

One of the most important advantages of the invention is its size. The invention would resemble the size of an average credit card and fit in a credit card pouch of a wallet. The average person carries between three to twenty credit cards, and the invention is in this same format size. Due to the wide acceptance of the credit card the size of the invention would be readily accepted and have a place in everyone's wallet.

There are also advantages to the public phone system in that the invention will eliminate misdialings of the credit card numbers, reduce phone fraud, expedite access time, utilize more of the existing phone equipment, and eliminate the expenditure on magnetic card reading phones, ultimately reducing the cost to the consumer for phone service.

The system also reduces the delay often experienced in accessing the telephone. It eliminates wrong numbers, misdialings, wrong charge numbers and other such delays which often frustrate the use of public telephone systems.

This invention could also be used instead of the generic bank credit card or any credit card for that matter. Essentially the "Universal Credit Card" could be used for anything that the current credit cards are used for, while providing greater security to the credit card industry. The retailer or merchant can be assured that the person placing the order is authorized to use the charge card and not just ordering from a number that has been copied down, carbon copies with someone's number imprinted out or a lost or stolen card. The way the current system works, a person willing to commit credit card fraud could so for fifty-nine (59) days or more. Not until the owner recognized a dispute in his/her charges in a statement, would that person know someone was making illegal charges to their account. The merchant, the consumer, the industry, and general public all bear

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this unnecessary added expense. Should the invention become the industry standard it would all but eliminate credit card fraud.

The "Universal Credit Card" will greatly simplify the credit card industry through both consolidation of the multiple cards and eliminating credit card fraud. A bank card company (i.e. Visa, Master Card), gas company, phone company, etc. will simply notify the individual his/her credit has been approved along the "Ultimate Credit Card". The owner then enters the information into the card via the keypad or the data bus. To use the card to charge, the owner must first input his personal identification number (PIN number).

One apparatus for achieving these goals is a credit card size unit having a memory, encoder, speaker, microphone and switch. In utilizing the invention as a phone card, depending on which carrier, the card is used to access an account or gain access to a phone system. The invention accesses the account via tones or signals fed through the receiver (microphone) or direct data input via a small data bus on the card. The data bus can also be used for inputting and outputting information to and from the device, and if applicable, in conjunction with the infrared source and detector.

A second apparatus for achieving these goals includes a credit card size microprocessor unit having a keypad, a microprocessor memory, an encoder, a speaking unit, a microphone as well as an alphanumeric display. The keypad permits the user to input the desired numbers, and to provide serial dialing to input new numbers and to identify the numbers as belonging to particular sources. Unlike other systems the processor is connected to a microphone and an output speaker such that the account number is not input to the telephone until the appropriate dial tone signal has been sensed by the microphone. This avoids the inefficiencies of programming a time delay as utilized in other systems. Each number that is being dialed is displayed so that the user can be sure that the correct number is being dialed in the telephone. The invention can also have a connection to an external system for inputting and outputting data to and from another source if that is desired. Typically the external bus is used for conventional credit card use (i.e. bank card), and if applicable in conjunction with a infrared source and detector.

In the two aforementioned apparatus, the microphone, speaker, and encoder may or may not be part of the design depending on the intended use of the device (i.e. the phone dialing circuitry could be eliminated in the event the manufacturer does not desire to utilize phone related capabilities).

The above has been a brief description of deficiencies in the prior art and features of the invention. Other features of the invention will become apparent to those skilled in the art from the Detailed Discussion of the Preferred Embodiment which follows.

#### BRIEF DESCRIPTION OF THE INVENTION

FIG. 1 is a schematic of the dialer/credit card of the invention.

FIG. 2 shows one side of the dialer/credit card with the keypad and display.

FIG. 3 is the reverse side of the credit card as shown in FIG. 2, the side with the speaker and microphone.

FIG. 4 is a schematic of the "Universal Credit Card", the invention.

FIG. 5 is a second schematic of the "Universal Credit Card".

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5 FIG. 8 shows the reverse side of the "Universal Credit Card".

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With reference to FIG. 2, the front of the card, there is shown a display and a keypad with function keys and decimal numbers 30. In this manner the speaker and microphone can be placed against the mouthpiece of the telephone, once the appropriate number has been selected. In another embodiment the card can have the speaker 18a and microphone 16c located on the same side of the card with the keypad and display.

65 Once the data has been properly input into the system, it can be used in the following manner. The user presses the sequence key until the desired data is displayed on display 14C. This is the data that will be input

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2
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to the system once operated properly. In utilizing the device as a phone card, the card's speaker is placed over the mouthpiece of the receiver and the user then presses the direct long distance dial key, if it is a long distance number. After a programmed delay period the number will be dialed using the tones according to a touch tone system. Once the number is completed the system will stop until the appropriate tone which identifies the need for the account number is sensed by microphone 16c. Once the tone is sensed, the speaker 18a will then be actuated to input the account number using the touch tone system.

Where a number of numbers are to be dialed until a connection is made, the sequence key 42 can be operated. In this system the sequence key is initially pressed and the card will automatically seek the next set of data. If no data is stored in a particular block, the sequence addressing step will move to the next block of data until a number is located. At this point the operation of the program will stop until a direct call is dialed or the sequence key is again pressed. Dialing would be accomplished again as discussed above. Similarly, rather than automatically sequencing, the user can scroll to the desired number by pressing the scroll key 46 and 56.

To change a number or an identification the processor is operated to arrive at a particular data location. This data is cleared by actuating clear key 36 and a new identification number and telephone number is input using the decimal keys 30. Once the desired number has been input the enter key is hit to place it in memory.

With scroll keys 46 and 56 the user can input the identification numbers, actuating the scroll keys until the data corresponding to the identification number is found.

As can be seen by FIG. 4, another embodiment of the apparatus includes switch 60 that activates the microprocessor with memory 62 that in turn outputs to speaker 58. The microprocessor 62 is connected to an input/output bus 64. In utilizing this device as a phone card, after the card has been preprogrammed, the user can place the speaker 58 over the receiver and press switch 60 activating the microprocessor outputting to the speaker 58. The speaker emits the touch tone frequencies corresponding to the user's account number thus allowing access to the phone system or completing the dialing procedure. The input/output bus 64 could be used for programming the card or outputting information directly to a phone system, cash register, or computer.

As seen in FIG. 5, the apparatus consists of a switch 80 connected to a clock 81 and a shift register 82 that outputs via databus 83 to the encoder 87 that in turn outputs to speaker 88. In this way after the card has been preprogrammed the user can place the speaker 88 over the receiver and press switch 80 activating the clock and shift register outputting to the encoder 87 in turn outputting to the speaker 88, or place the card on the receiver and when the credit card request tone is sensed by the microphone 86 the input/output circuitry 84 activating the clock 81 and shift register 82 outputting to the encoder 87 in turn outputting to the speaker 88. The speaker emits touch tone frequencies corresponding to the user's account number thus allowing access to the phone system or completing the dialing procedure. The input/output bus 84 could be used for programming the card or outputting information directly to the phone system, cash register, or computer.

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The actual size of the device to house the elements discussed above is shown in FIGS. 6, 7 and 8. The card 90 as shown has a typical credit card configuration with the logo and other information on front 92. The near side 93 includes the microphone and speaker that can be made small enough not to significantly interfere with the thickness as shown. These elements can be embedded in the card and the circuit board to reduce the amount of space required.

The above has been a detailed discussion of the preferred embodiment of the invention. The full scope of invention to which Applicant is entitled is defined in the claims which follow and their equivalents. The specification should not be interpreted to unduly narrow the scope of invention to which Applicant is otherwise entitled.

What is claimed is:

1. An electronic credit card and direct dialing device comprising:
  - a case of a size and shape to fit in the user's wallet corresponding to the size of a credit card and to be held in hand during use or inserted into a corresponding input device;
  - a keyboard on said device comprising alphanumeric keys for numerals 0 to 9 and letters A to Z and function keys;
  - alphanumeric display means in said case with a capacity for displaying a plurality of telephone numbers, credit card numbers and other data;
  - read-write memory circuit means in said case for storing and retrieving data items comprising selected ones of said credit card numbers, said telephone numbers, and identification, said memory circuit having a capacity for storing a plurality of data items under a multiplicity of identification names as memory addresses;
  - said storing means controlled by said alphanumeric keys and functions keys for feeding to said memory circuit means said data items including said selected ones of said telephone numbers, said credit card numbers, and said identification to be stored and for identifying the names under which said items are to be stored;
  - retrieving means controlled by said alphanumeric keys and said functions keys for retrieving said data items stored by said memory circuit means including means for designating the name under which the desired data items are stored and for displaying by display means said name and said data items stored under the designated name; and
  - means for imparting a first audio signal identified by a telephone for dialing one of said telephone numbers;
  - means for sensing a dial tone and request tones from said telephone, said means for sensing capable of sensing said dial tone and request tones from an earpiece of said telephone when said device is located at a mouthpiece of said telephone; and
  - means for automatically actuating said means for imparting a second audio signal corresponding to a charge number upon sensing said dial tone from said telephone, said second audio signal being imparted to said telephone to complete a call.
2. The device according to claim 1 wherein said retrieving means comprises retrieving a name by inputting a mnemonic address of said name by said keyboard and means for sequencing from one name to another when

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